

Colorblind

by Jane Scherer

Kevin is colorblind. He can see you and me, watch TV, and play ball, but the bright green grass under his feet looks yellow to him.

To understand what colorblindness is, you have to know how the human eye works. Light comes into the eye through the pupil-the small, dark hole in the center. The light passes through a lens that focuses it and sends it into the back of the eyeball. This part of the eye is called the retina. It contains special cells that are light-sensitive.



When you look at something, the cells in your retina send chemical signals to your brain. Those signals travel along the optic nerve to the visual cortex, the part of your brain that is in charge of seeing. There, the nerve signals are translated into the image of a house, a car, or your sister. The retina has millions of nerve cells. Some are called rods. Others are called cones. Go into a darkish room and look around. The 100 million rods in each eye are sensitive in dim light, and make adjustments so that you can see even if there isn't too much light.

When there's not much light, however, everything looks gray. This is because the seven million cone cells in each eye-which are sensitive to different colors-can see color only in bright light. That's why shocking pink, orange, and other bright colors look gray in dim light. There are three different types of cone cells. Each is "in charge" of a different color: red, green, or blue. Your brain combines these three basic colors into the rainbow of shades that make up our world. When you look at a STOP sign, your red cones react. You know the sign is red. Joey is colorblind to red because he is missing certain cone cells. He can see blue and green fine, but not red.

When all three types of cone cells are missing, the person sees only black, white, and shades of gray. However, not too many people are totally colorblind. Not being able to tell red from green is much more common.

Babies are naturally colorblind. Their cone cells haven't developed yet. It takes six to eight months before a baby will be attracted to colorful toys and pictures.

More men than women tend to be colorblind. In the United States, about eight out of every one hundred men are colorblind. One in every two hundred women is, too. It's something you inherit from your parents-like the color of your hair or eyes. If both of them have trouble with a certain color, you are more likely to have trouble, too.

<p style="text-align: center;">Reading Mini-Assessment Grade 5 LA.E.2.2.1 Cause/Effect Form B</p>

Kids like Kevin and Joey may not even know they are blind to certain colors. This can cause problems when it comes to picking out clothes. Kevin might think a green shirt is gray. Joey might insist his red shirt is green. Otherwise, colorblindness isn't too hard to live with.

Eye doctors have special vision tests to find out if someone is colorblind. They are flash cards that show letters, numbers, or images made up of dots. The dots on one card might be green surrounded by red. A person blind to green won't be able to read the figures in the test. All that he or she will see are a bunch of red dots.

There's nothing much that can be done to "fix" colorblindness. It doesn't cause any pain, and it isn't dangerous. Kevin and Joey will just have to learn other ways to recognize such things as traffic lights and color-coded signals, and that isn't really hard to do.

Reading Mini-Assessment Grade 5
LA.E.2.2.1 Cause/Effect Form B

Name _____ **Date** _____

Directions: Read the passage “Colorblind”, then circle the letter of the correct answer.

1. What is the MAIN reason that people are colorblind?
 - A. Rod cells are sensitive to dim light.
 - B. Cone cells can only see color in bright lights.
 - C. Certain cone cells are missing.
 - D. The cells in the retina are not sending signals to the brain.

2. What happens to make all babies colorblind?
 - A. The cone cells haven’t developed yet.
 - B. Babies play with colorful toys.
 - C. Babies look at colorful pictures.
 - D. The rod cells haven’t developed yet.

3. How will eye doctors determine if someone is colorblind?
 - A. They will track chemical signals to the brain.
 - B. They will give special vision tests.
 - C. They will examine the pupils.
 - D. They will show the patient colored cards.

4. In a dimly lit room, everything looks gray to Joey because
 - A. cones cells only see color in bright light.
 - B. his blue and green cone cells are missing.
 - C. he can only see the color red.
 - D. he is totally colorblind.

5. What is the MAIN purpose of the pupil?
 - A. to focus light
 - B. to translate images
 - C. to allow light into the eye
 - D. to send signals to the brain

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Answer Key – Colorblind

LA.E.2.2.1: The student identifies cause-and-effect relationships, stated or implied, in literary text or informational text.

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